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September 10, 2020

Via Electronic Filing

Secretary Rosemary Chiavetta
Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

RE: Petition of PECO Energy Company for Approval of its Electric Long-Term Infrastructure Improvement Plan for the Period January 1, 2021 through December 31, 2025
Docket No.: P-2020-3020974
PECO Response to I&E Letter In Lieu of Formal Comments (I&E Set I)

Dear Secretary Chiavetta:

Enclosed please find PECO Energy Company's ("PECO's") Response to the Bureau of Investigation and Enforcement's ("I&E") Letter In Lieu of Formal Comments ("I&E Set I") and Certificate of Service.

Due to the pandemic, service is being made via electronic mail only. Should you have any questions or concerns, please feel free to contact me directly at (215) 841-4353.

Very truly yours,

A handwritten signature in blue ink that reads "JS Johnson".

Jennedy S. Johnson
Assistant General Counsel

Enclosure

cc: Erika L. McLain, Esq., Prosecutor, Bureau of Investigation and Enforcement
Certificate of Service

Pennsylvania Public Utility Commission

v.

PECO Energy Company

Petition of PECO Energy Company for Approval of
Long Term Improvement Plan - Electric

Docket No. P-2020-3020974

Response of PECO Energy Company
To Interrogatories of the
Bureau of Investigation and Enforcement
I&E Set I
Response Date: 09/10/2020

I&E-I-1

Please provide a list of the 10-25 projects proposed to be completed under the *Ariel Infrastructure Resiliency Areas Program* and a breakdown of the 28,800 to 33,800 assets to be replaced through the *Ariel Infrastructure Resiliency Target Assets Program* referenced on page 33 of PECO's proposed LTIP.

RESPONSE:

Data regarding the specific projects and assets to be replaced under the Company's Aerial Infrastructure Resiliency Programs during the proposed full LTIP II term (2021-2025) is not yet available at the level of detail requested. Condition assessment is an ongoing process requiring analysis of PECO's aerial infrastructure performance on an annual basis to prioritize replacement projects that will yield the greatest impact for our customers. PECO anticipates completing 2 to 5 ⁽¹⁾ of the 8 candidate projects that have been identified through PECO's initial condition assessment of aerial infrastructure components. PECO has also identified approximately 3,000 targeted asset locations⁽¹⁾ system-wide for replacement that are currently undergoing final feasibility, engineering, and design analyses. Examples of proposed Aerial Infrastructure Resiliency Areas Program projects include:

- A project outside of Philadelphia county, where PECO would install 8,700 feet of aerial cable, reconductor 8,500 feet of open wire primary, and replace 1,400 feet of messenger supported covered conductor, and an additional 6 poles, 3 crossarms, and 67 other pieces of equipment.

- A project in Philadelphia where PECO would install 3,800 feet of aerial cable and replace an additional 17 poles and 25 crossarms.

⁽¹⁾ Note, where conductor, cable, pole, and crossarm installations and replacements are proposed, installation or replacement of associated pieces of equipment (poles, crossarms, cutouts, insulators, etc.) is also included.

Responsible Witness: Richard Cornforth

Pennsylvania Public Utility Commission
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To Interrogatories of the
Bureau of Investigation and Enforcement
I&E Set I
Response Date: 09/10/2020

I&E-I-2

Referencing pp. 46-47 of PECO's proposed LTIIP:

- What analysis was performed to determine the type and vintage of cables that are expected to have higher rates of failure to be replaced first?; and
- Was an analysis performed to determine the type and vintage of cable conduit needed to be replaced, specifically the fiber duct conduit also known as “Orangeburg” fiber duct?

RESPONSE:

- What analysis was performed to determine the type and vintage of cables that are expected to have higher rates of failure to be replaced first?

PECO tracked the failures of its mainstem cable over a fourteen-year period (1999 – 2012) in preparation for LTIIP I and correlated these failures with various factors that include age, number and size of conductors, insulation type, and operating voltage. The Company’s analysis revealed that cross-linked polyethylene (CLPe) and paper-insulated lead covered (PILC) cables with several combinations of age and other variables experienced higher failure rates than cable with other insulation types. Among the cable types with the highest failure rates (0.061 – 0.245 failures per mile per year) were single-conductor and three-conductor CLPe and PILC cables with conductor areas of 350 or 500 kcm (thousand circular mils), primarily operated at 13 kV, most of which were older than

30 years. These cable types continue to be a high priority for replacement under LTIIP II, as ongoing assessments are consistent with those described above.

PECO believes historic failure rates per year, per mile are strong indicators of expected future failure rates and, therefore, are important factors in prioritization for replacement. The Company will continue to assess cable failures and will modify replacement priorities to any significant changes that may arise. As PECO mentioned in its LTIIP II Plan, T. A. Short in his *Electric Power Distribution Handbook* refers to a fact widely acknowledged within the electric power distribution industry that medium voltage cable manufactured before the mid-1980s and insulated with CLPe is prone to exhibiting higher failure rates than other cables due to an insulation failure mechanism called “treeing.” PECO’s experience with CLPe cable failures is consistent with these findings. PECO will prioritize cable replacements on a failures per-circuit or per-mile basis.

- Was an analysis performed to determine the type and vintage of cable conduit needed to be replaced, specifically the fiber duct conduit also known as “Orangeburg” fiber duct?

PECO did not analyze any specific type or vintage of cable conduit to prioritize for replacement, because, in contrast to age and cable type, the Company’s analysis of cable failure rates did not identify conduit as a significant driver of cable failures.

Responsible Witness: Richard Cornforth

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of PECO Energy Company for	:	
Approval of Its Electric Long-Term	:	
Infrastructure Improvement Plan for the Period	:	DOCKET NO.: P-2020-3020974
January 1, 2021 through December 31, 2025	:	

CERTIFICATE OF SERVICE

I, Jennedy S. Johnson, hereby certify that I am serving a copy of PECO Energy Company's ("PECO's") **Response to the Bureau of Investigation and Enforcement's ("I&E"), Letter in Lieu of Formal Comments (Interrogatories, I&E Set I)** and Certificate of Service dated September 10, 2020, upon the persons listed below:

Via Electronic Mail Only:

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